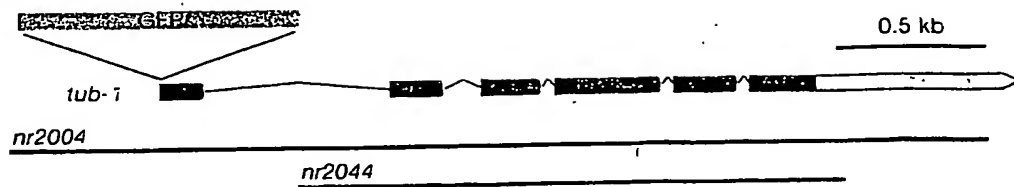


A



B

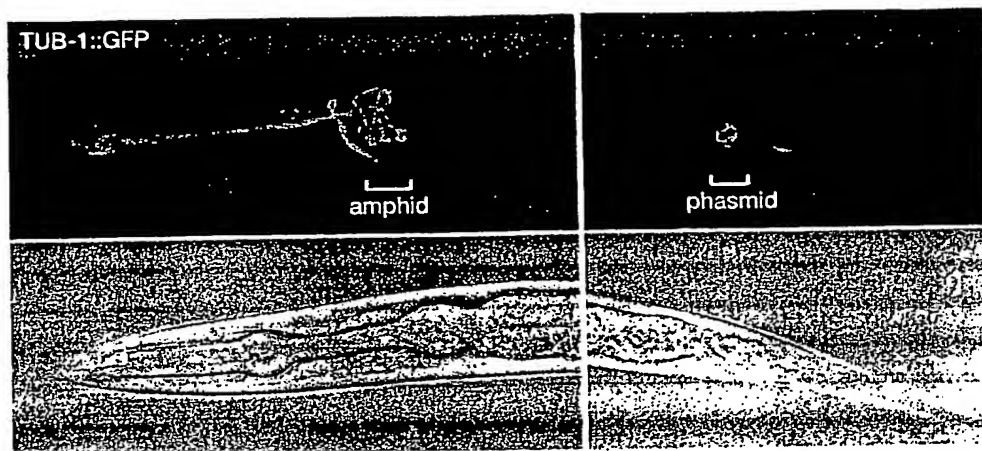


Figure 2

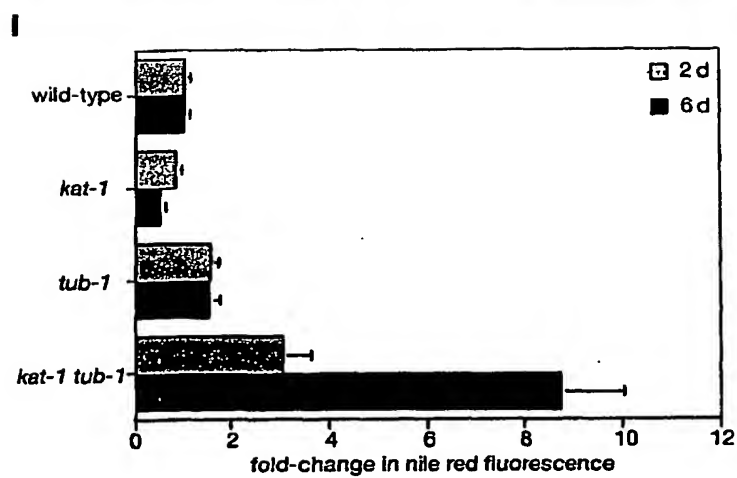
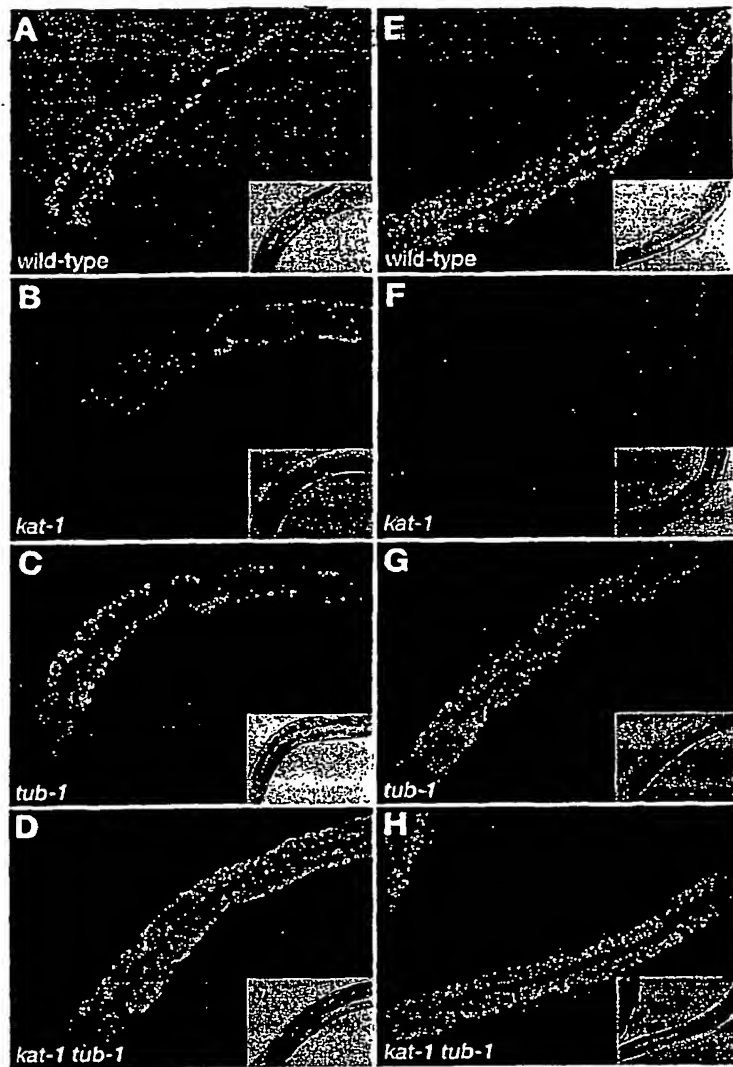


Figure 3A

Peroxisomal Fatty acids β -oxidation

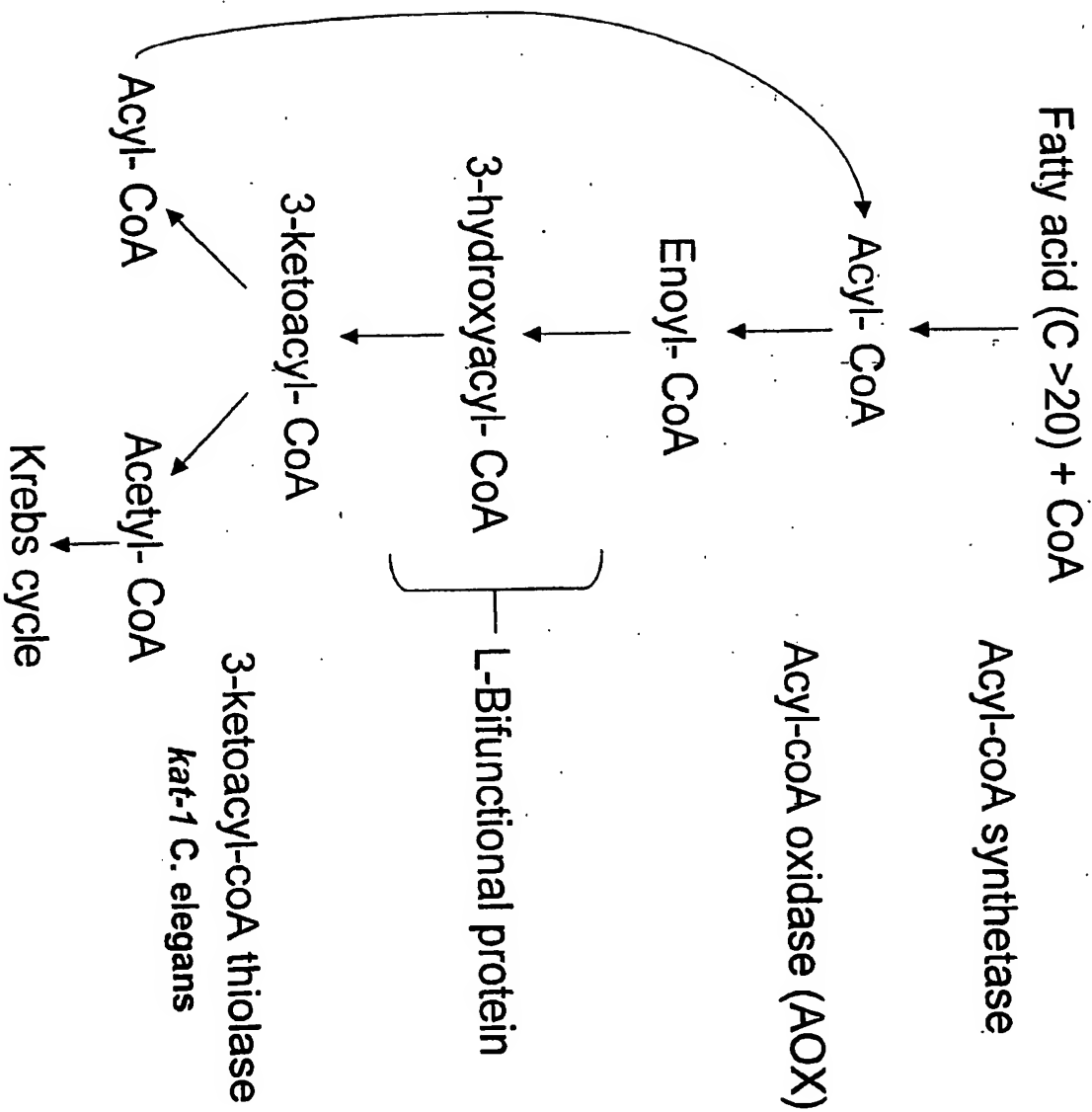
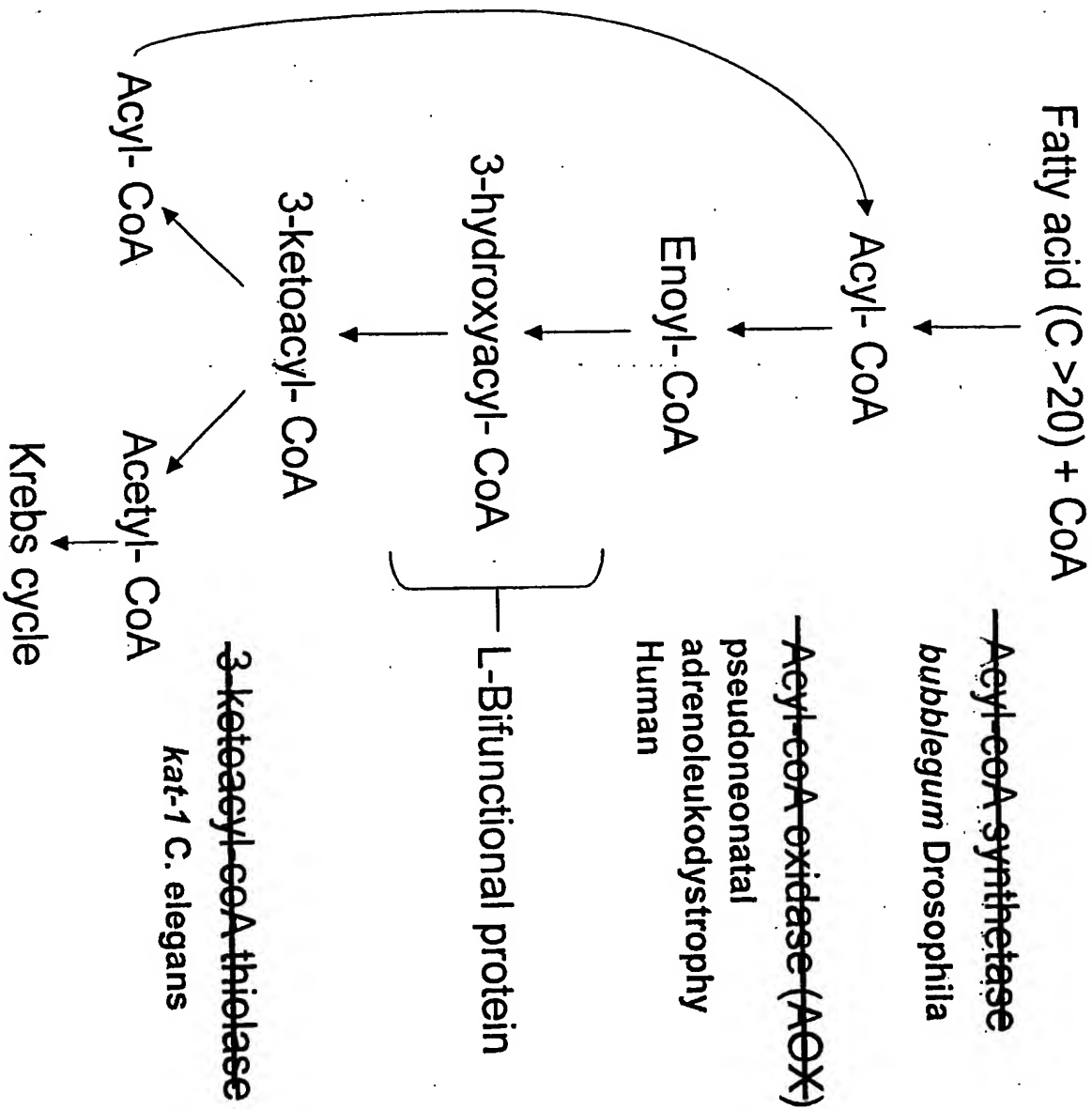


Figure 3B

Peroxisomal Fatty acids β -oxidation



Sequence alignment of 3-ketoacyl-coA thiolase family members

TU02G5. 8 *kat-1*
Saccharomyces
Yarrowia
Arabidopsis
Drosophila
Rattus
House
Human

36: SFRSSLSVVAPEPMAVAAKAAIER... GAVKSSSIOEVELGQVCOAMAG QAPAROLA: 90
49: GFKGAEKDVNTDYMTYMFMEFLGPEPELRADLMLEEVACGMYLVNAGAG ATEHDAIC: 107
43: GKGGLFKDSSSEMAASILEGLYK... ESKIDPEKLIGDVVCGNYLAAGAG XTEHDAIC: 97
21: ARRGGEKDLPDMLASVYKAYVER... TSHDSEFGDLYVGVYAPSSQKMECPMA: 76
37: SFOSQLAPLPAVLGARAHEAAVER... AGUAKTDVQVYVHGMVSAGLG QAPAROLA: 91
61: AGRGGEKDTPEDEMSAPFLTAVLQD... VIKKPECLGDISYGNVLEPGAG AVHAPITLQ: 115
51: ASRGGKMTLPDEMSAVITAVLQD... VIKKPEQLGDISYGNVLEPGAG AVHAPITLQ: 105
51: AGRGGEKDTTPDEMSAVITAVLQD... VIKKPEQLGDISYGNVLEPGAG AHAAPITLQ: 105

K mg399 (g → a)

TU02G5. 8
Saccharomyces
Yarrowia
Arabidopsis
Drosophila
Rattus
House
Human

91: LGAGHDLGVAAYLVYVYK... CSSGLKALHLLAFOQIOTGHODEFAIGGSHSHSOVPEYVQRCET: 150
108: LASGIMYSTPFAVHNRQ CSSGLTVANDLANKLVGQIDIGLALGVESH INNYKNV: 162
98: LVAAGIPEVPEFAVHNRQ CSSGLVNDVANKLVAGQIDIGLALGVESH SMQYG P: 151
77: YFAGEFDDSVPEVYVYVYK... CSSGLQVADVLAASVRASTYDIGLQGVESH STDHI: 129
92: IFAGHPTNCCVYVYVYK... CSSGLQVHLGQSTYDIGLQGVESH SNVPYLLKRGAT: 151
116: FLSCHEPEVYVYVYVYK... CSSGLQVANTAGCVRNGSYDIGHACGVESH SLNMR: 168
106: FLSCHEPEVYVYVYVYK... CSSGLQVANTAGCVRNGSYDIGHACGVESH SLSGH: 158
106: FLSDIPEVYVYVYVYK... CSSGLQVASTAGCVRNGSYDIGHACGVESH SLADR: 158

P mg368 (g → c)

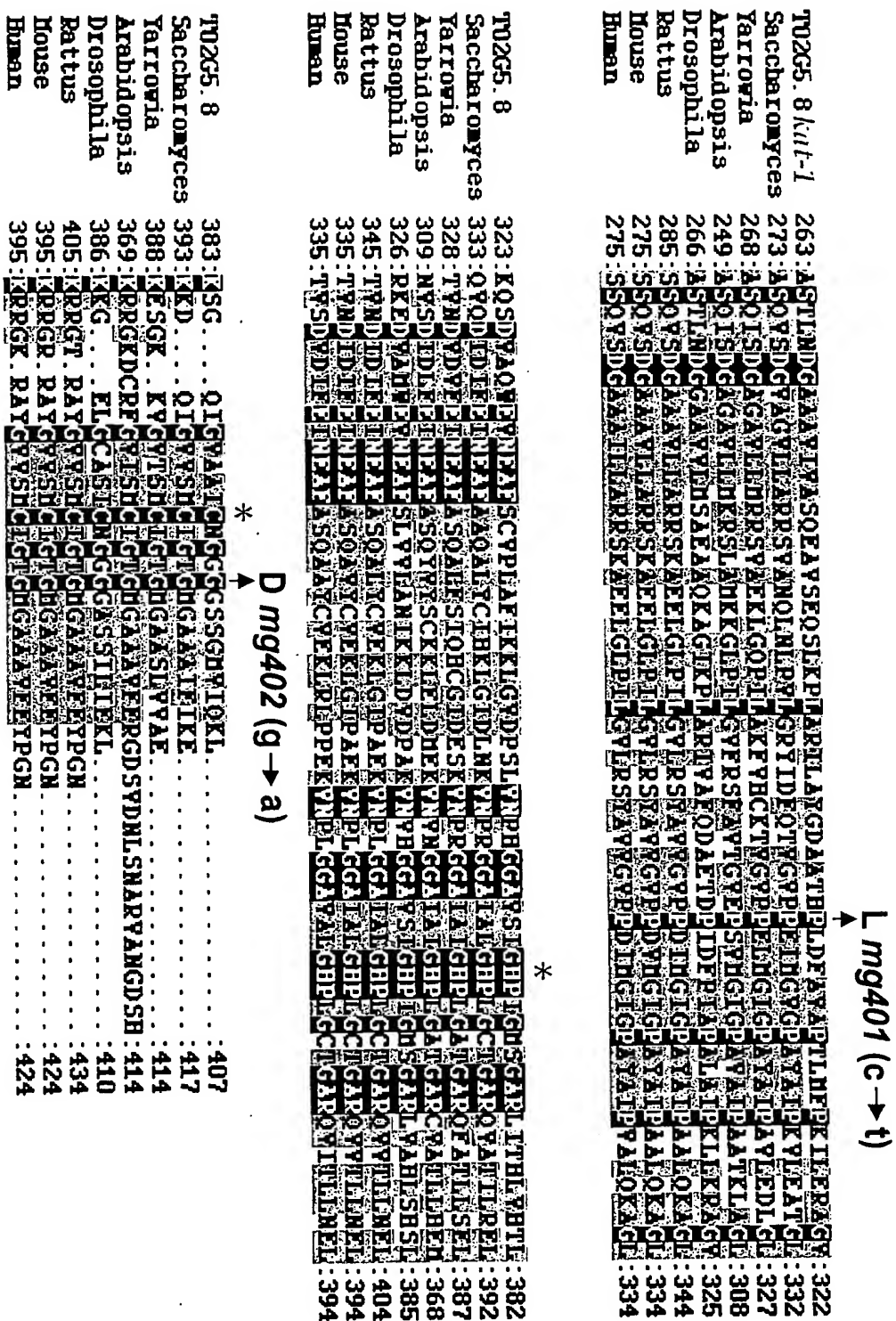
TU02G5. 8
Saccharomyces
Yarrowia
Arabidopsis
Drosophila
Rattus
House
Human

151: PYGGFQYIDGIXKXGLTDAYDKYBHGCCKEYKXENGHTRKDODEVALLNSYKESAKVFN: 210
163: NPLGNISSE FENKNEFAKCKLTPGTHNENVAANEKISRED ODELLANSTOKAYTKKNE: 221
152: NSVTPFSN KFNHNEFAKCKLTPGTHNENVAANEKISRED ODELLANSTOKAYTKKNE: 209
130: PGCGFHBGNPRAQDFPKARDGHPNGHNSNVAERHGVYVPEFODMAAVESHKRAAAVAA: 189
152: PYGGFNLMDGIFEDGLVDYNAKFBHGNCAENTAKLETPRQODFAVESHKRAAAVAA: 211
169: GNPGNIS... PILESDKARDCLTPGTHNSNVAERHGVYVPEFODMAAVESHKRAAAVAA: 226
159: GNPGNIS... PILESEKARDCLTPGTHNSNVAERHGVYVPEFODMAAVESHKRAAAVAA: 216
159: GNPGNIS... PHEKEKARDCLTPGTHNSNVAERHGVYVPEFODMAAVESHKRAAAVAA: 216

K mg400 (g → a)

Figure 5

Sequence alignment of 3-ketoacyl-coA thiolase family members



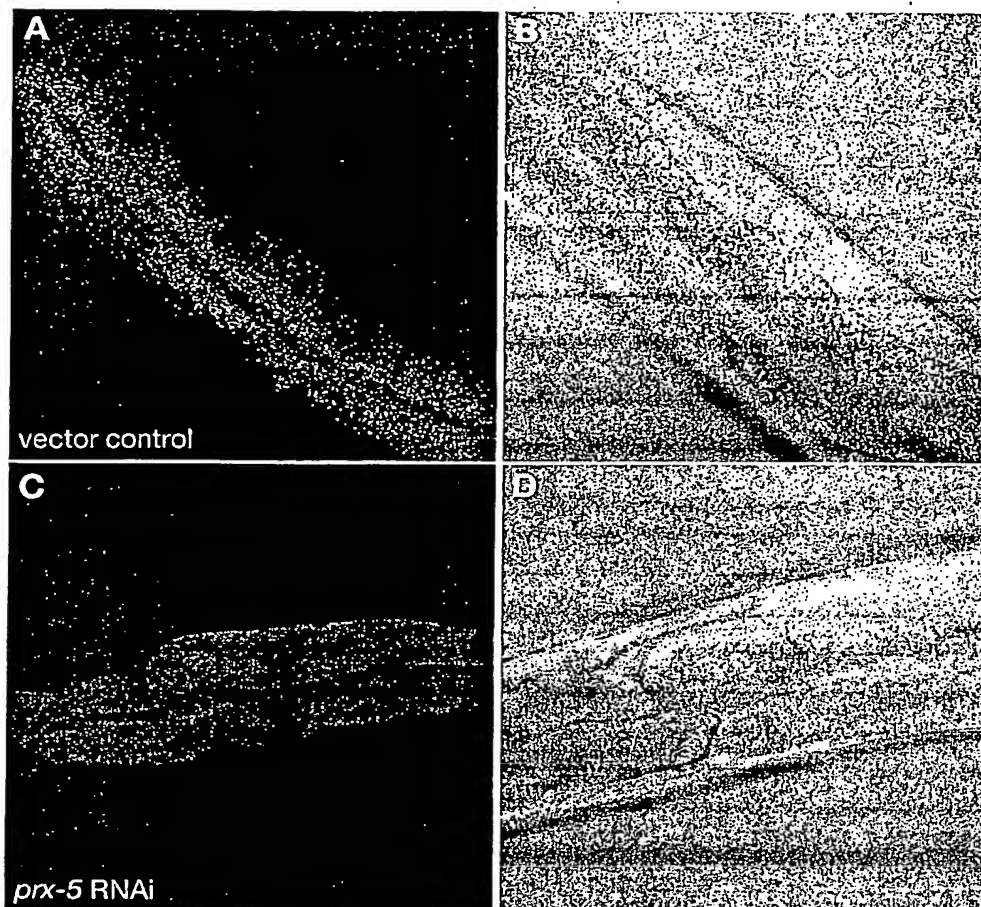


Figure 7A-7E

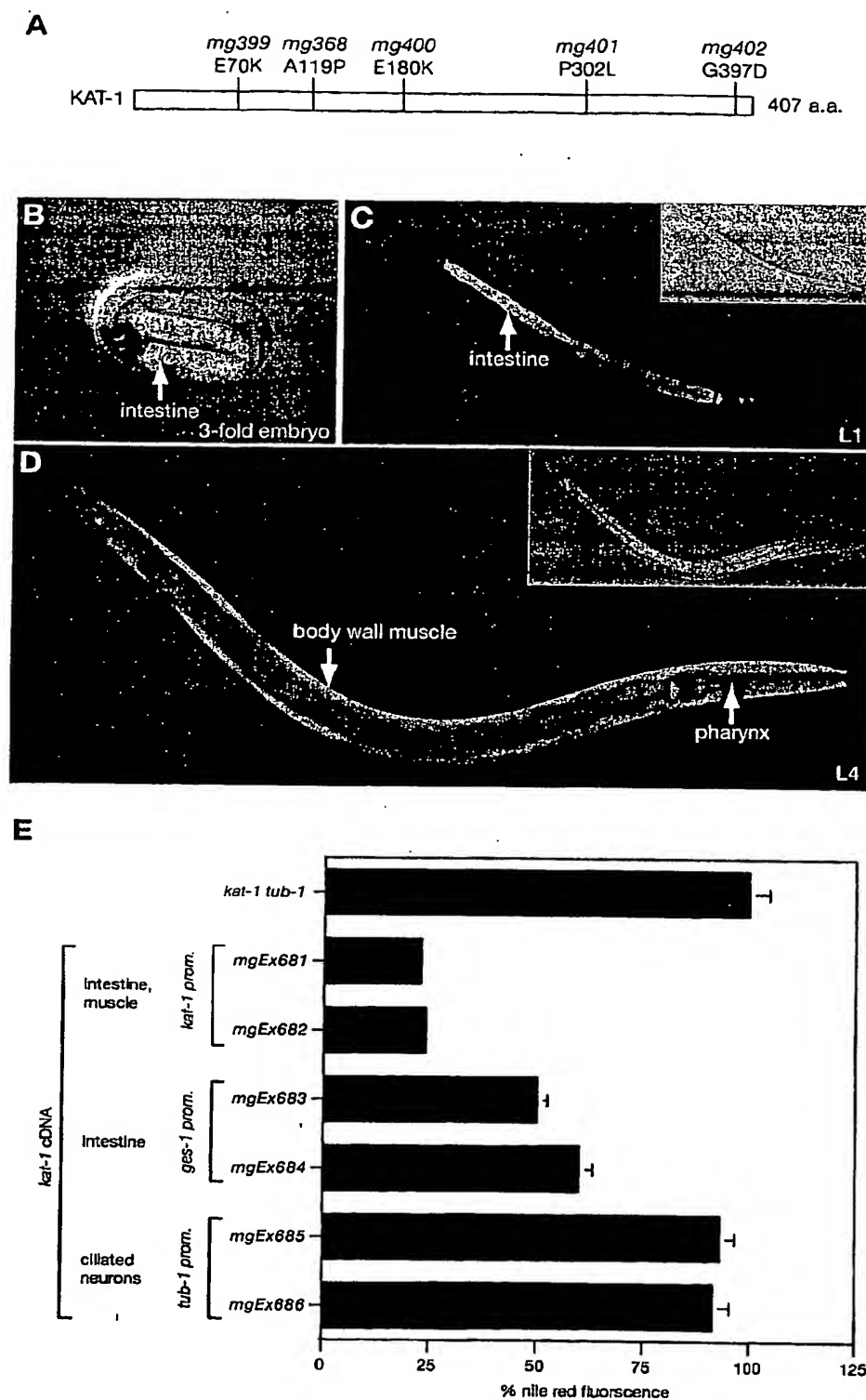


Figure 7F

C. elegans 1MLSSSGHAIRRGITTSAAALSNKHAFIVGAARTPTG.SFRSSLSSV
S. cerevisiae 1 MSORLQSIKDHL...VESAMGKGESKRKNSLLEKRPEDVVIWAANRSAIGKGPFGAFKDV
H. sapiens 1 .MQRLQVVLGHLRGPADS GWMPQAAPCLSGAPQASAADV VVVGHRRTALCRAGRGGFKDT

↓ K mg399

C. elegans 45 TAPETASVAIKAAER..GAVKPSS..IQEVFLGQVCOANAGQAPARQALGAGLDLSVA
S. cerevisiae 58 NTDYLLYNFLNEFIGRFPEPLRADLNLIEEVACGNVLNVGAGATEHRAACLASGIPYSTP
H. sapiens 60 TPDELLSAVMTAVLK..DVNLREPO..LGDICVGNVLQPGAGAIMARIAQFLSDIPETVP

↓ P mg368

C. elegans 101 VTTVNKVCSSGKKAIIILAAQQTQTGHQDFAIGGGMESMSQVPPFYVQGEIIPYGGFQVIDG
S. cerevisiae 118 FVALNRQCSSGLTAVNDIANKIKVGQIDIGLALGVESMTNN..YKNVNPLGM....ISSE
H. sapiens 116 LSTVNROCSSGLQAVASITAGGIRNGSYDIGMACGVESMS....LADRGNPGN....ITSR

↓ K mg400

C. elegans 161 IVKDGLTDAYDKVHMCNCGEKTSEMGITRKDODEYAINSYKKSAAWENGNIGPEVVPV
S. cerevisiae 172 ELQKNREAKKCLIPMGITNENVAANFKISRKODEFAANSYOKAYKAKNEGLFEDEILPI
H. sapiens 168 LMEKEK.ARDCLIPMGITSENVAERFGISREKODTFALASOOKAARAQSKGCFQAEIVPV

C. elegans 221 NVKSK....K.GVTIVDKDEEPTKVNFDKFTSLRTVEOKD.GTITAANASTLNDGAAAV
S. cerevisiae 232 KLPDG.....SICQS.DEGPRPNVTAESLSSIRPAFTKDRGTTTAGNASQVSDGVAGV
H. sapiens 227 TTTVHDDKGTXRSITVTQDEGIRPSTTMEGLAKLKPAFKD.GSTTAGNSSQVSDGAAAI

↓ L mg401

C. elegans 274 IVASQEAHVSEQS[KPLARILAYGDAATHPLDFAVAPTLMFPKILERAGVKQSDVAQWEVN
S. cerevisiae 284 LLARRSVANQLNLEVLGRYIDFQTVGVPEIMGVGPAYAIKPVLEATGLQVQDIDITFEIN
H. sapiens 286 LLARRSKAEELG[PILGVLRSYAVVGVPEDIMGIGPAYAIPVALQKAGLTVSDVDIFEIN

*

C. elegans 334 EAFSCVPLAFIKKLGVDPSLVNPHGGAVSIGHPIGMSGARLITHLVHTLK...SGQIGVA
S. cerevisiae 344 EAFAAQALYCIHKLGLDLNKVNPRGGAIALGHPLGCTGARQVATILRELK...KDQIGVV
H. sapiens 346 EAFASQAAYCVERLRLPPEKVNPLGGAVALGHPLGCTGARQVITLLNELKRRGKRAYGVV

↓ D mg402

C. elegans 391 AICNCGGSGSMVVIQKL..
S. cerevisiae 401 SMCICTGMGAAAFIPIKE..
H. sapiens 406 SMCICTGMGAAAYFPEYPGN

Nile red staining of 2 day old adult

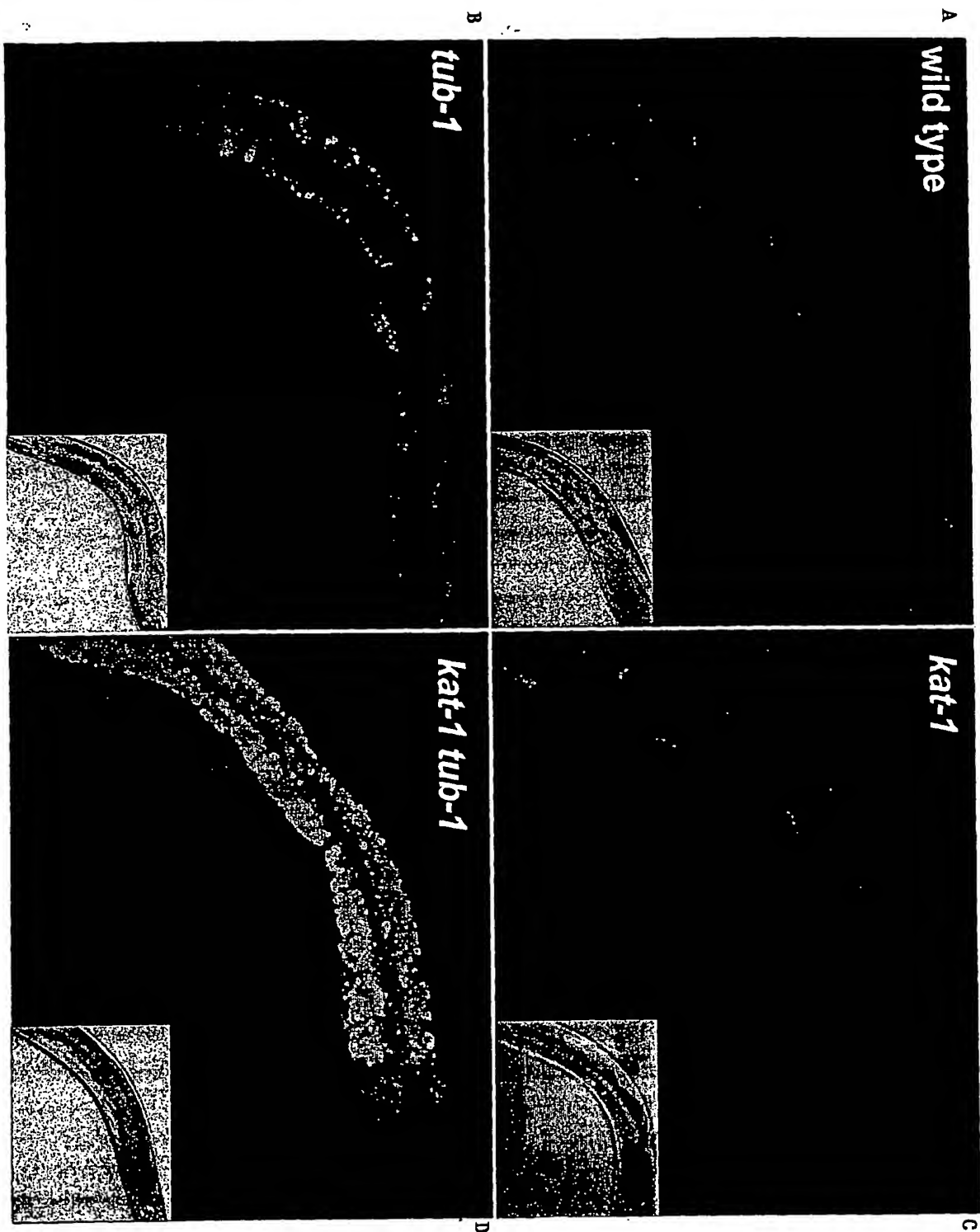
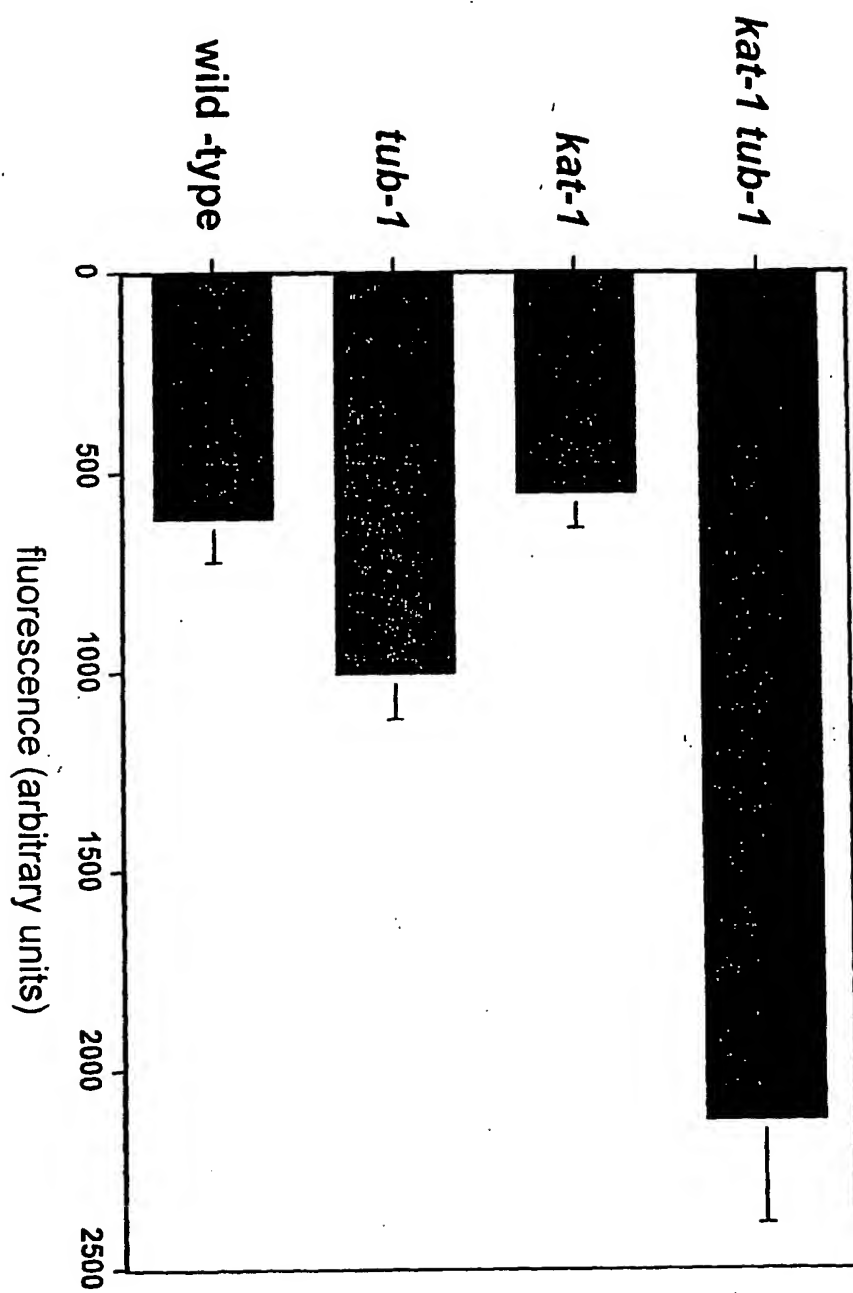


Figure 9

Nile red staining of 2 day old adult



Nile red staining of 6 day old adult

Figure 10A-10D

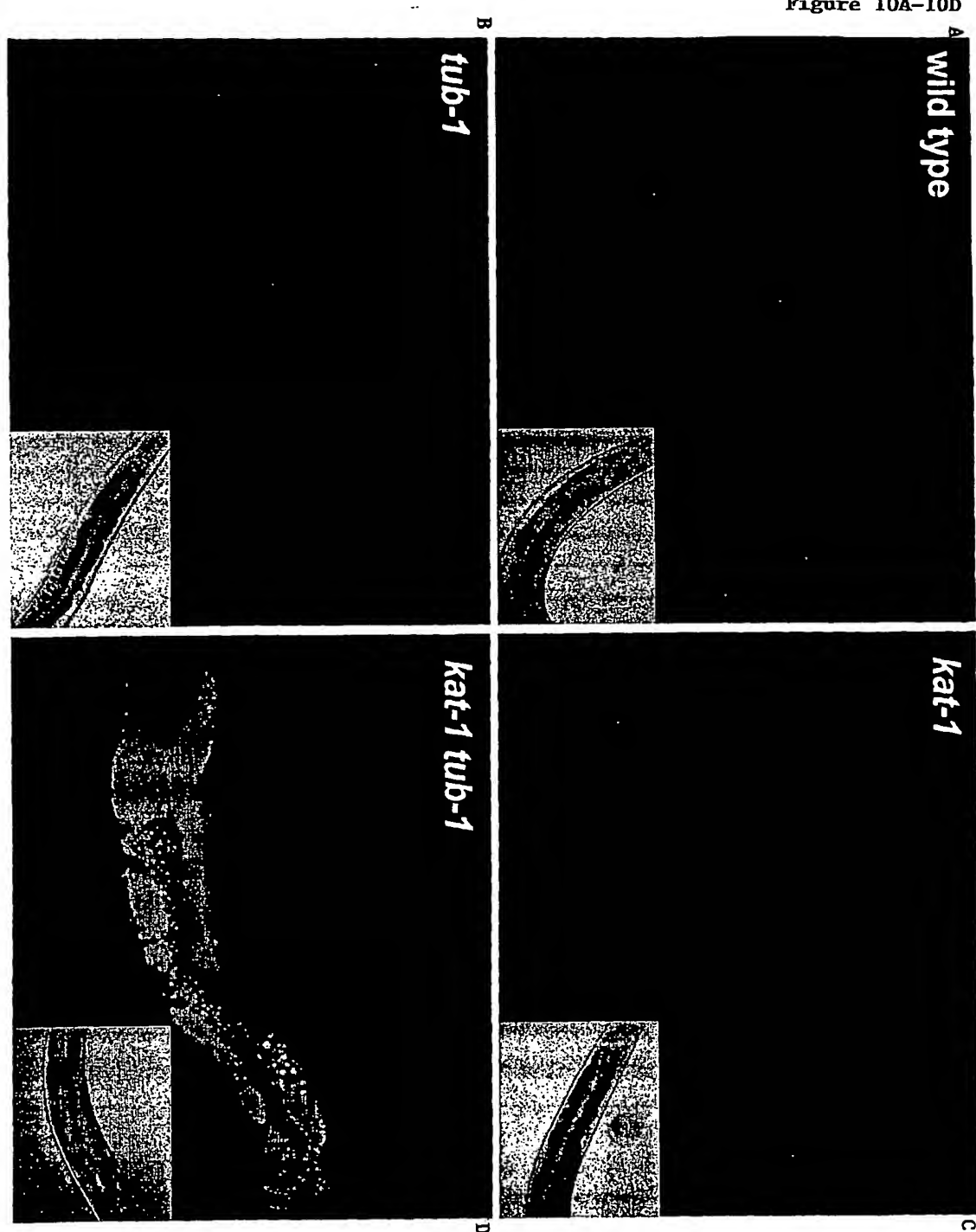


Figure 11

Nile red staining of 6 day old adult

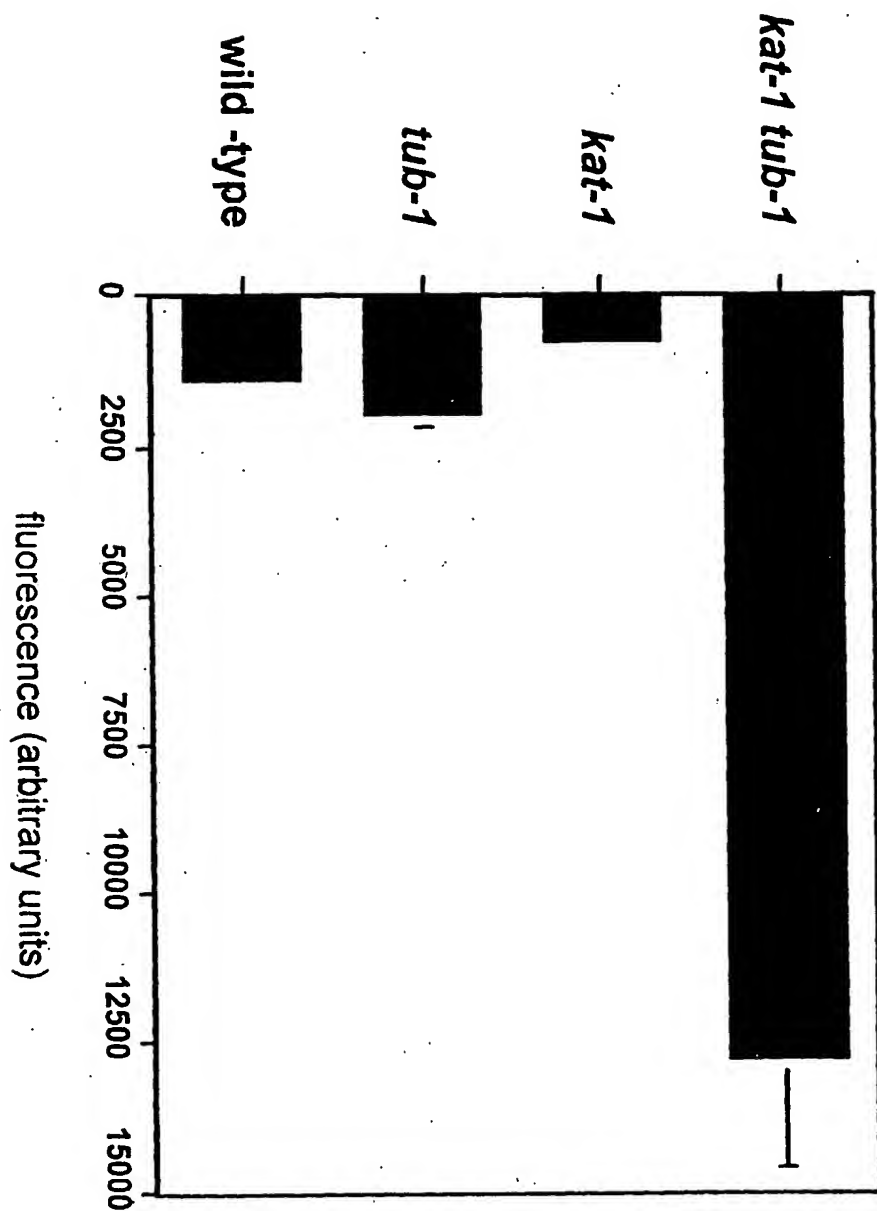


Figure 12

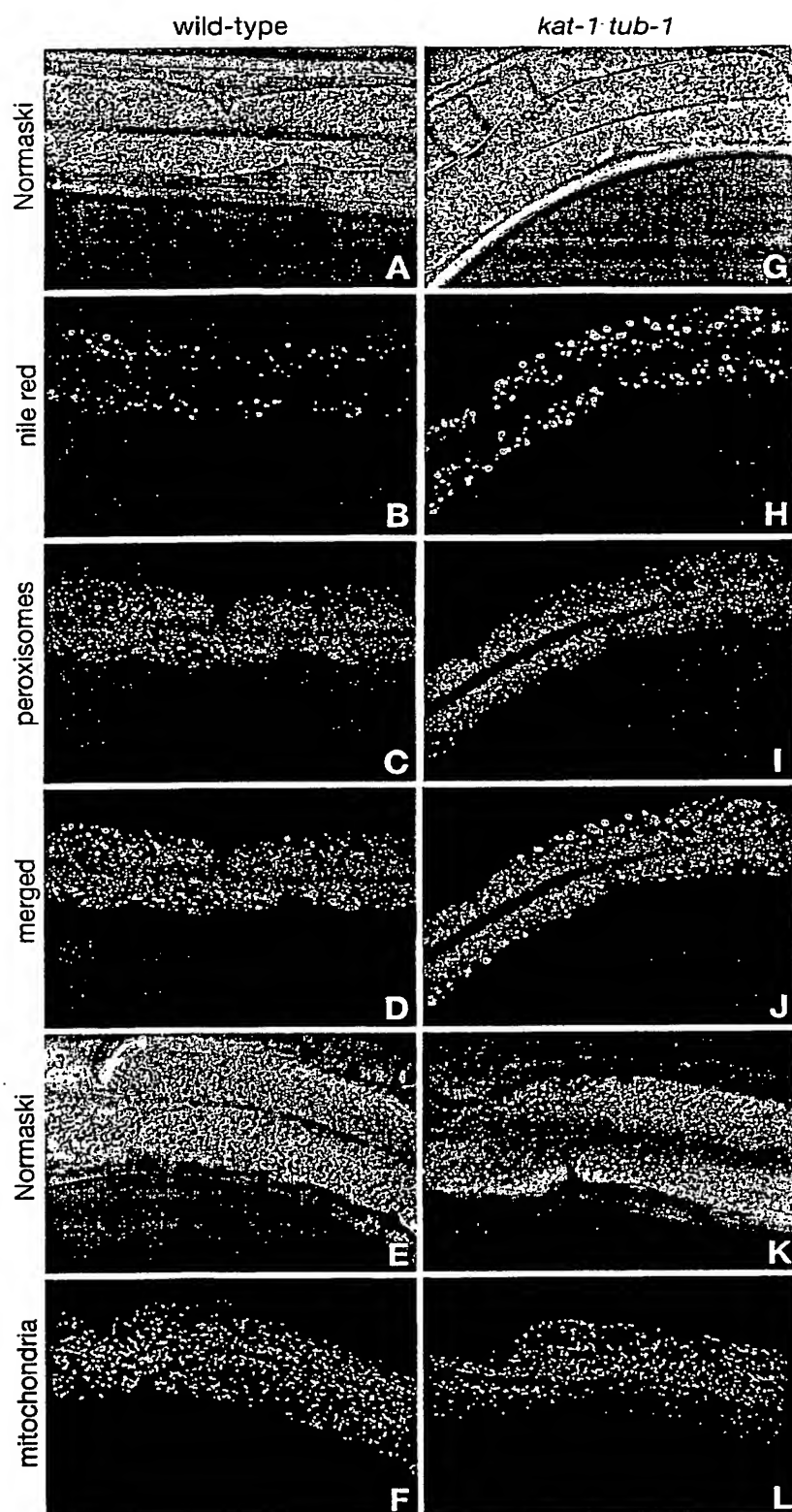
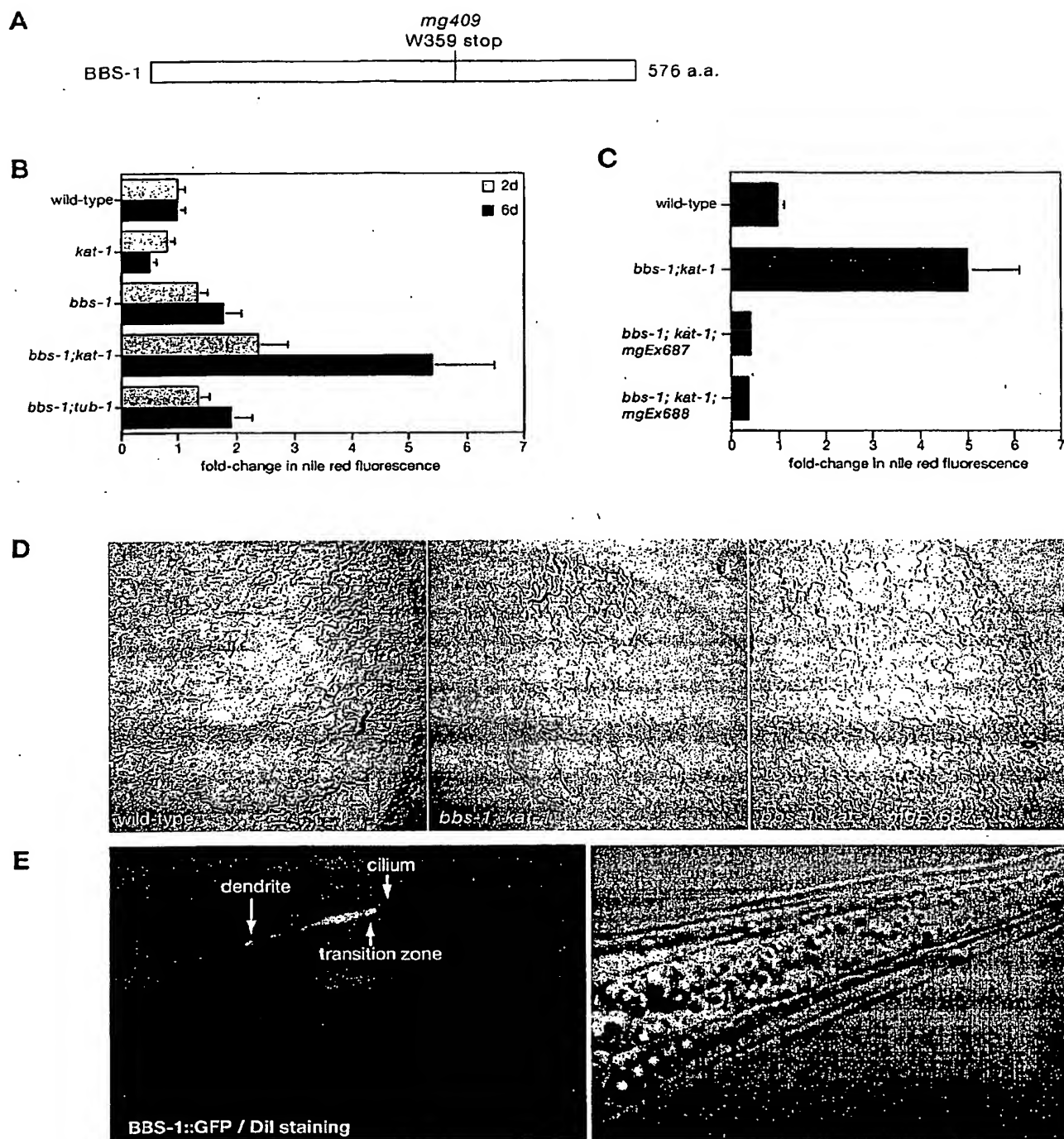


Figure 13A-13E



Alignment of BBS-1 and its human orthologue

Figure 13F

```

BBS1_human 1:MAAASSSDSDACGAESNEANSKMLDAHYDPMANHTFSACGLNDHGDGSKLVGDLGGGQDPKLV: 70
BBS-1_worm 1:.....MAKPVNVNQSKMTVPVLKBCCELYCPSTCVAFGPTLSDNDSKLTLYHGCHRGVYMKLV: 59

BBS1_human 71:LKGPLVMTESPLPAALPAATAETLMEOHEPTPAALIASGPCYVYKNIIDYFKESIPOLPPNPLEODIMN:140
BBS-1_worm 60:FQOLEQISSESLADMTALVHEINPLSS..IPSLAVAAAGPSIILYKNIIDYFKESIPOLPPNPLEODIMN:127

BBS1_human 141:QAKEDRLDPLTLKEMLESHEEFAEPLSIQSLRFLQLSLSEMAAFYNOEKSNSIKROTIVITVTTLKKNL:210
BBS-1_worm 128:AVVNKKLNGDTLLTLKRDEDDYAFSKLTPISTYLRADKETQVVVEHYGTRKANSATITCDAKLTG..:195

BBS1_human 211:ADEDAVSCLVETENKELVYDPEFTTAKMSPPSVFLEVSGQFVAFRLAAACRNGNTIYILRDSDK:280
BBS-1_worm 196:STARPLDLVIGTEHCEIFLIDSOAFITLETETKIGSVPNLCAVGYVDYRLFVQTRASLDFCMKRGEA:265

BBS1_human 281:HPKYCIELSAQPVGDLPRVHKVHYVGSTQDSIHGFPHKGGKIMVWQMPAALLTYNLLSQHSRGLQAVNAGL:350
BBS-1_worm 266:DYQPIVISQSMITSMVLVKKELVYTVENLIHFASFQGGKKNIVKCPSKIKMTEPFITPLKQLAAVEAVF:335

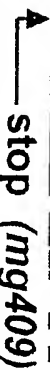
BBS1_human 351:ANGEVRTYRDKALINVTHTPDAYRSICFGRYGREDNTLINTTGGGGLTKLTKRTAVFVEGSGSEVGPPEA:420
BBS-1_worm 336:DK.EIRMYNEHYLDITYOEKPLAVWKKYCCYGRDSTLVYAFKDGSLAQLQTFRRKANFDTKLDYNQVPEQA:404

BBS1_human 421:QAWKLVNVPKRTPRKVVDOFLREKAGTAMHRAQOTDYLIRLRAAYTQALSSLSPLSTTAREPKTHA:490
BBS-1_worm 405:HALKLCQIPKKTKEVDLTOREVQDGNRIHVVYOKNLEQYKRLAASYELTSSASATVSTTVLPVEISV:474

BBS1_human 491:VYQGLGPTFKITLHLQNSTTRPVGLVCFYNEALVSLPRAFFKVPPLVPGLNYPLETPEVSLN.NKG:559
BBS-1_worm 475:DHGFGPTFRMTIHLSSSKQN.LYDMHLSISDPELYDFDTPLIRVHLASGQSYSTTLVYCKDPEKA:543

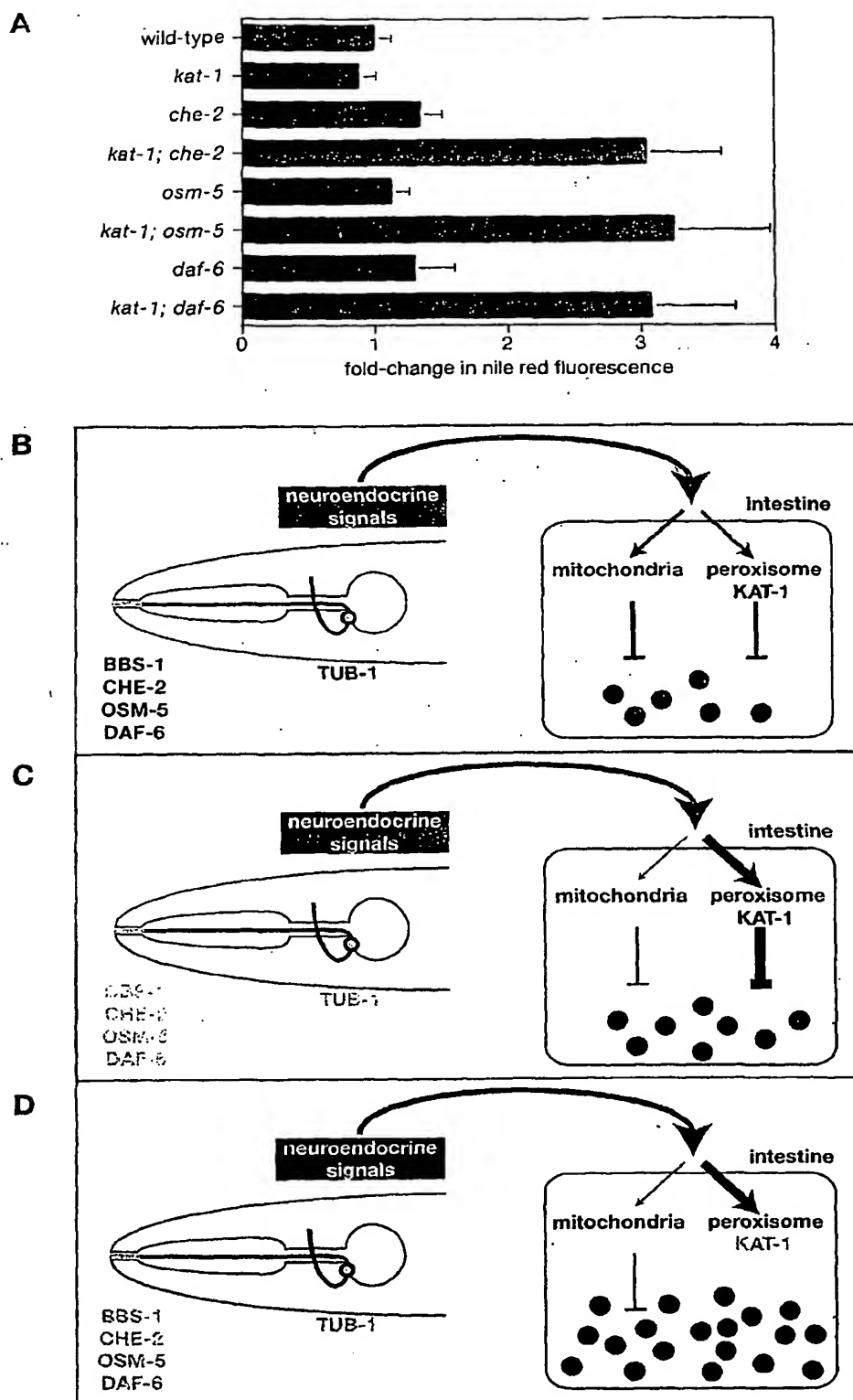
BBS1_human 560:ISDIIRKVLVIRRGQSADPLISAHVNMDSGSEGLAAA:593
BBS-1_worm 544:ANCDVRAALLVHAKRATPLVTAIVTKMPSEFPLD.:576

```



 stop (mg409)

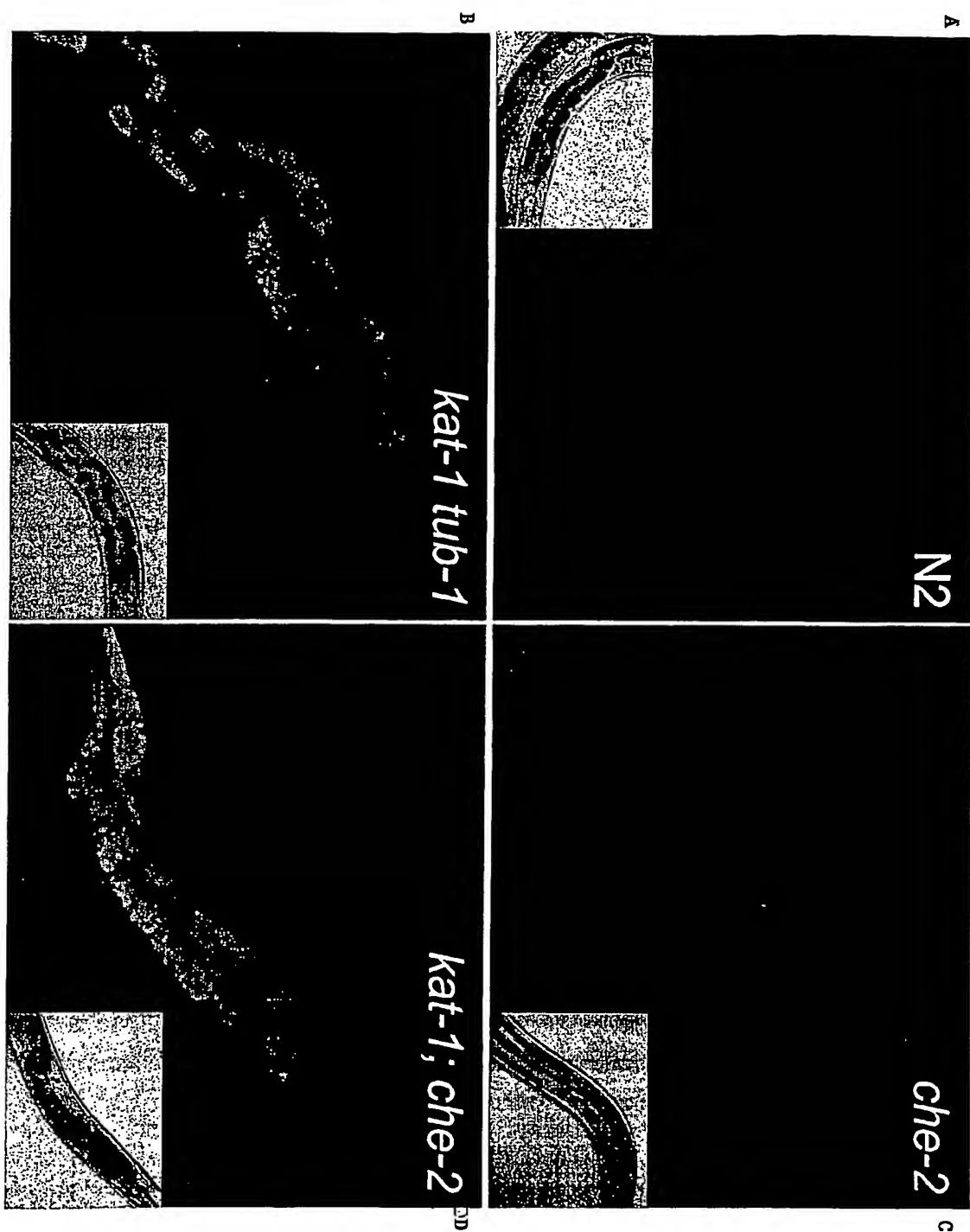
Figure 14A-14D



Synergistic increase in lipid accumulation in *kat-1*; *che-2*

6-day old adult; 20°C

Figure 15A-15D



Molecular lesion of *egl-4(mg410)* in *mut17.3*

LG IV -15.05

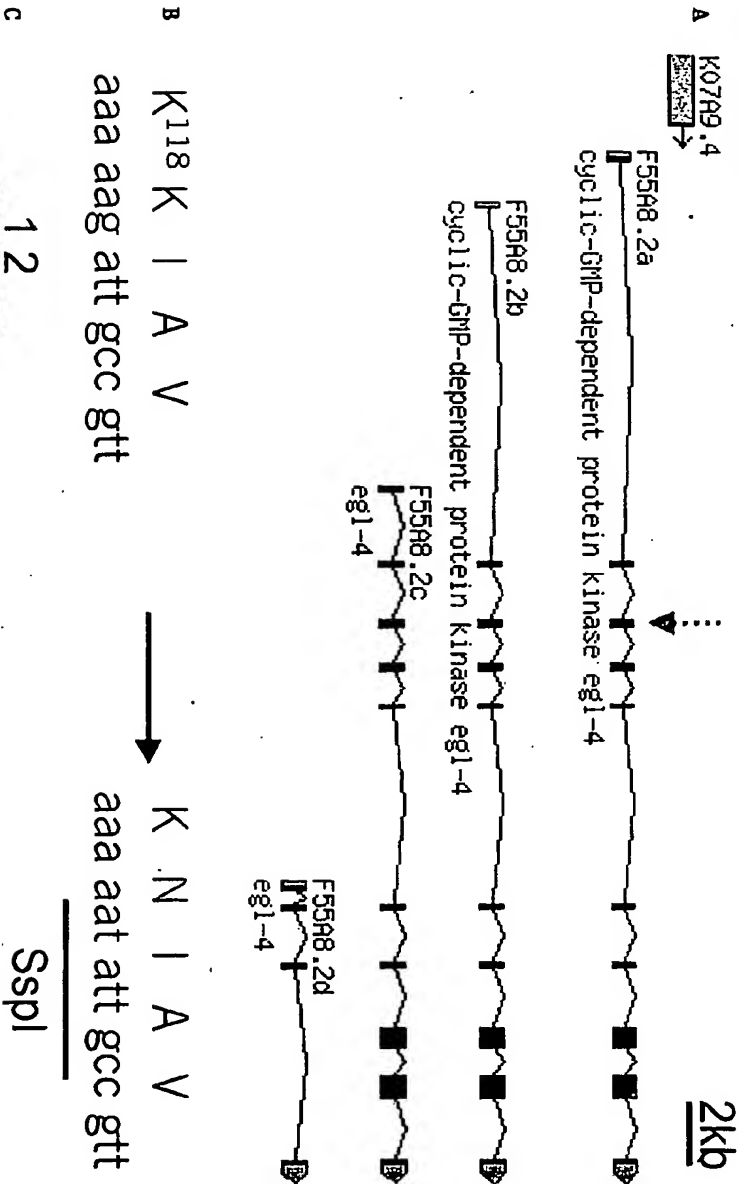
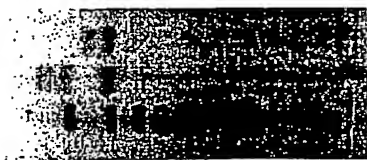


Figure 16A-16C



SspI digest
1. wt
2. *mg410*

Figure 17A-17C

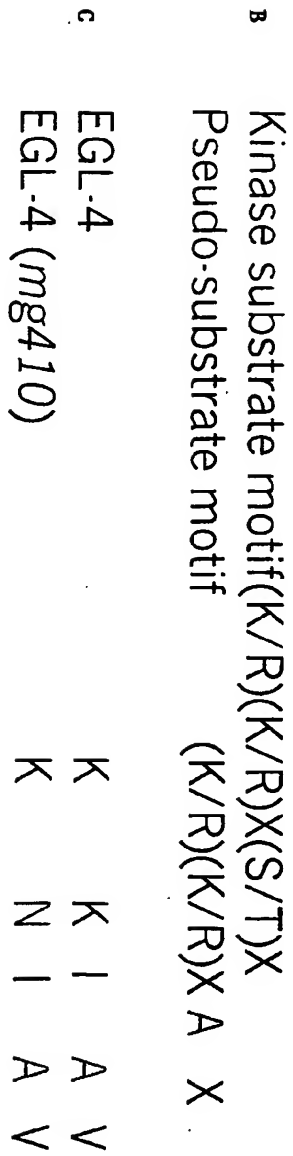
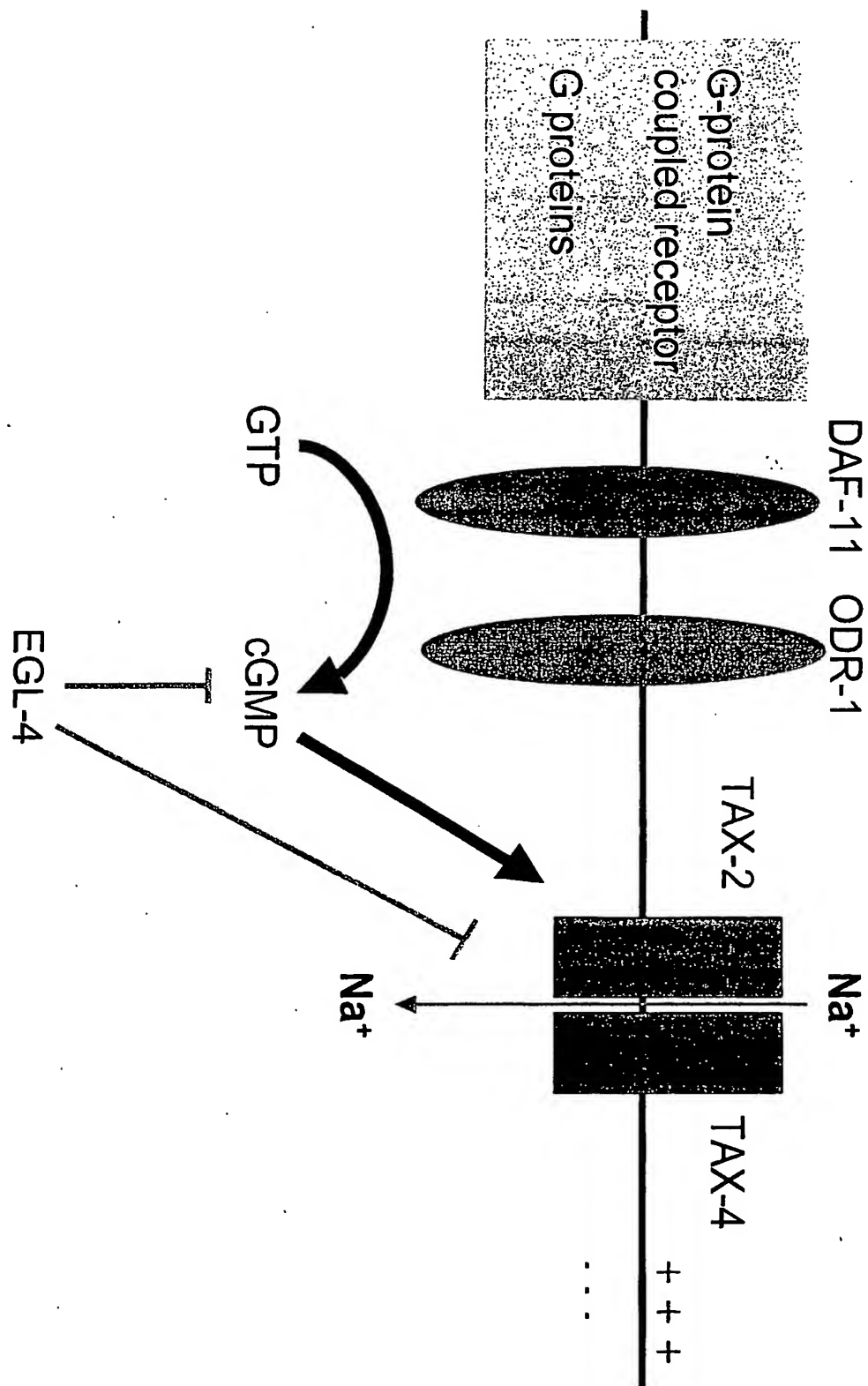


Figure 18



Alignment of EGL-4 and its human orthologue

PCT/US2004/019186

Figure 19

CGK1-beta 1:.....MGL.....TRDLOYANQETLELRQDAIDELIEIDOKDELQKTONELDK: 48
egl-4b 1:MKQOPRIYVQVGVTRTFEAHELQKLEPPQLEFAHSRKDAQDQROQTYEGHIKRSELSGEGYTTQRECDK: 70

CGK1-beta 49:YRSVIRPATQQAOK.....QSASTLO.....GEPRTKROTSABPTAETIQDLSHYTTP: 97
egl-4b 71:LRSVLEOKAOSASPPGGQPPSPSPRTDQLQNDLQOKAVLPADGVQAKKTAWSAEPNENK...PATDQ:137

CGK1-beta 98:FVPSKPSQKDIKEAETDNDPKNLELSQIQEIVDCMPVEYGKDSCTKEGVGSLVAVNEDGKVENTK:167
egl-4b 138:HYNKTVGAKQMRDAVQKNDPILKOLAKEQIIEIVNCWYBARRAGQWYIQEGEPDRERVAEGELQVEN:207

CGK1-beta 168:EGVKLTCTMGPGKVFGEIATILYNCTRTAVVKTILVNKLINAIDRCQCEQTIMRIGITKHDEYMEFLKSVPTF:237
egl-4b 208:EGALTGKWRAGTVMGELAILYNCTRTASVQALTDVOLMTIDRSVEQMTQRLGEMRHSLQIMNELTKVSIQ:277

CGK1-beta 238:QSPPEEILSKLADVHEETHYENGEEYIIRQGARQDTFELLISKGTNVNTRSDSPSKDVFILRLGKGDVEGE:307
egl-4b 278:QNTSEDRISKMAVMDUDYKDGCHYIIRQGEKGDAPFVINSQVKTQIQIEGETEPRELRVINOGDVEGE:347

CGK1-beta 308:KATGGEDVRTANVIAAEVNTCLVDRDSFKHLIGGLDQYSNKAYEDAFAKAYEAFAF.....:366
egl-4b 348:KATLGEVVRTANVIAQAPGVFVLTIDRSEFGKLIGLDSFKKDYGDKERLAQVVRPEPPSPVKIVDDFRE:416

CGK1-beta 366:FAATKLSDFNIEDTLGVGGFGRVELVOLKSEESKTEFAMKILKKRHIVDTKROQEHIRSEKQIMQAHSDP:435
egl-4b 417:EEAQVTLKNVRRQATLGVGGFGRVELVCWNGDKAKTFAKALKKKHIVDTKROQEHIPAEKNIMMETSIDM:486

CGK1-beta 436:IVREYRTEKDSKYLVMMEACLGELMTILDRGSEFEDSTRTFYTACVVEAFAYIHSKQIILYRDLKPENL:505
egl-4b 487:LVKLYKTERDOKKLYVMTLEVCIGGELMTILDRGHEDDYIARFYVACVLEGLLEYLHRKNIVYRDLKPENC:556

CGK1-beta 506:ILDHRGVAKLVDEGFAKKLGFGKKTWTFGCTPEYVAPETILNKGHDISADYWSLGILYVELTGSPPFG:575
egl-4b 557:ILANTGYLKLVDGFAKKLWASGRKWTWFCGTPEYVSPETILNKGHDAQADYMALGIYECLEIMLGRPPFOA:626

CGK1-beta 576:PDNPKTYNELLRGIDMTEFPKXITAKNAANTLKKLCRDNPSERLNLKNGVKDIOKHKWFEGFNWGLRK:644
egl-4b 627:SDPKTYTETLTCGYDALEIPAKKILKLTALTLKKLCRDNPGERLGSQGVNDIRKHRWEMGFQWGLRS:696

CGK1-beta 645:GTLTDPDITBSVASPTDTSNEDSPEDNDPEPPDQNSGWDIDF:686
egl-4b 697:RTDKPPIBPKVSNPADVTFNDNYPDNDVPRDEFSGWDGEG:737

← N (mg410)

Figure 20

egl-4(lf) suppresses lipid accumulation of *kat-1 tub-1* mutant animals

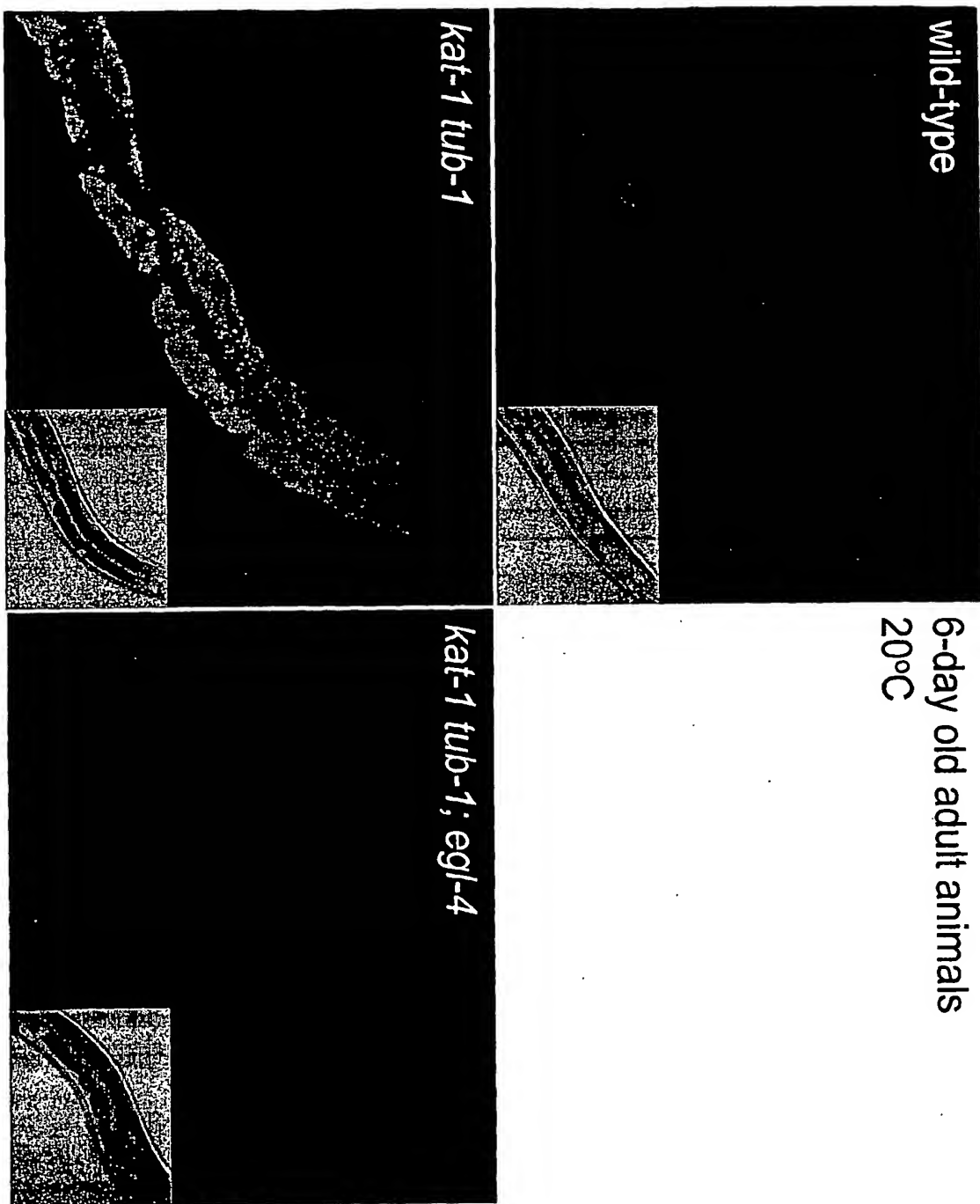


Figure 21

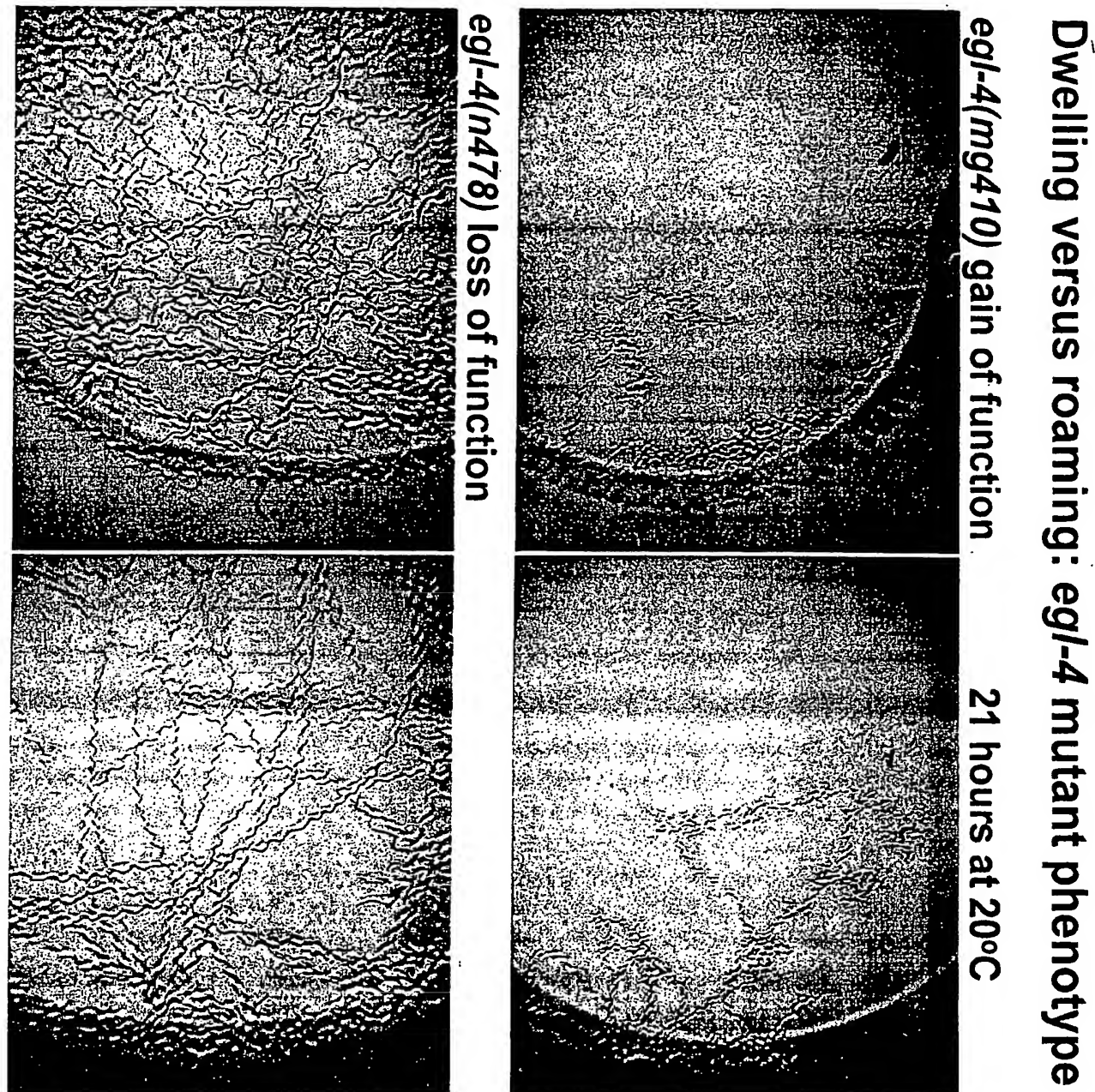


Figure 22

kat-1 enhances lipid accumulation of *tax-2* and *tax-4* mutant animals

TAX-2, TAX-4: cGMP gated ion channel

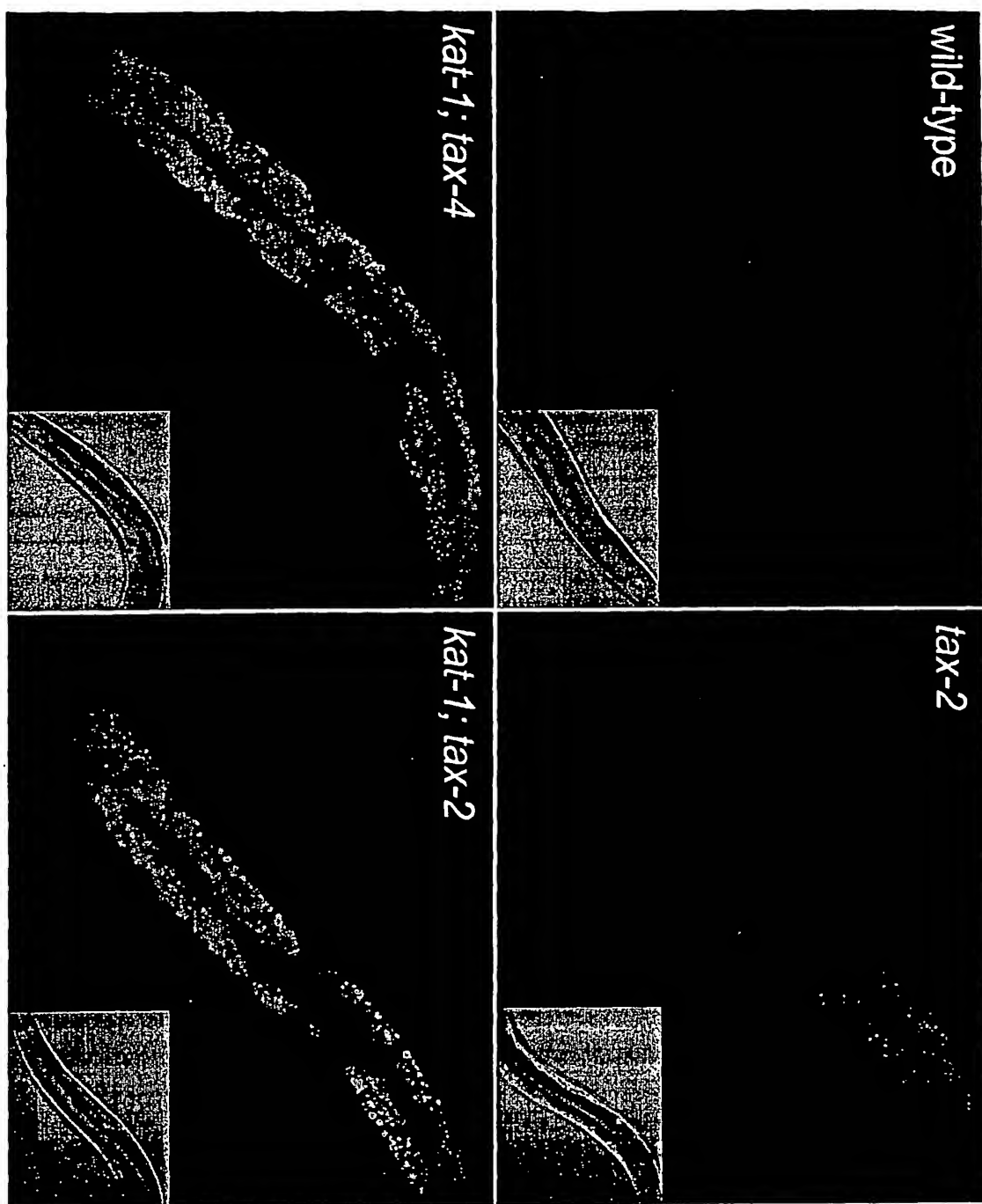
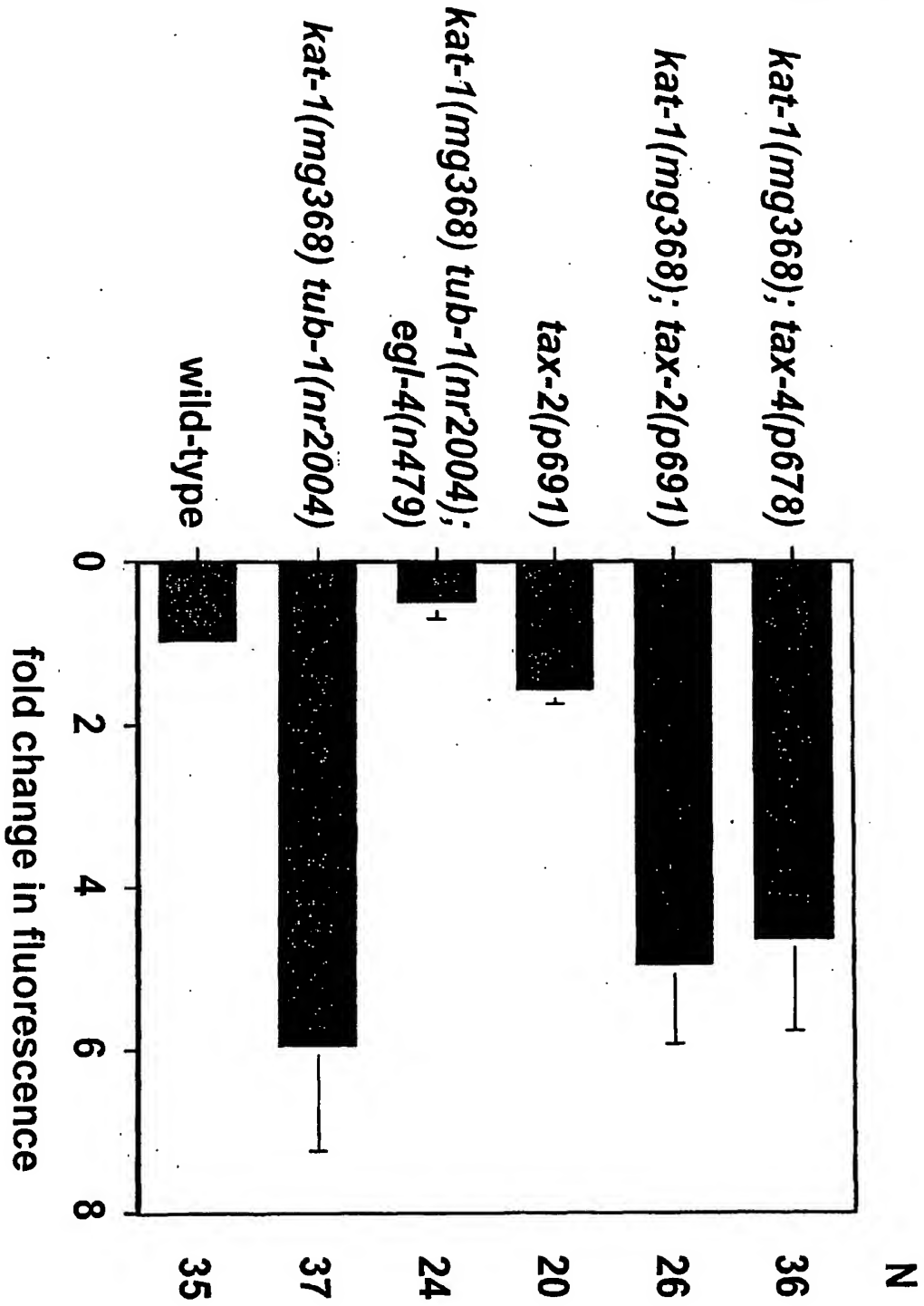


Figure 23

Nile red fluorescence of 6-day old adult animals



C1-BODIPY- C12 staining of 6 day old adult

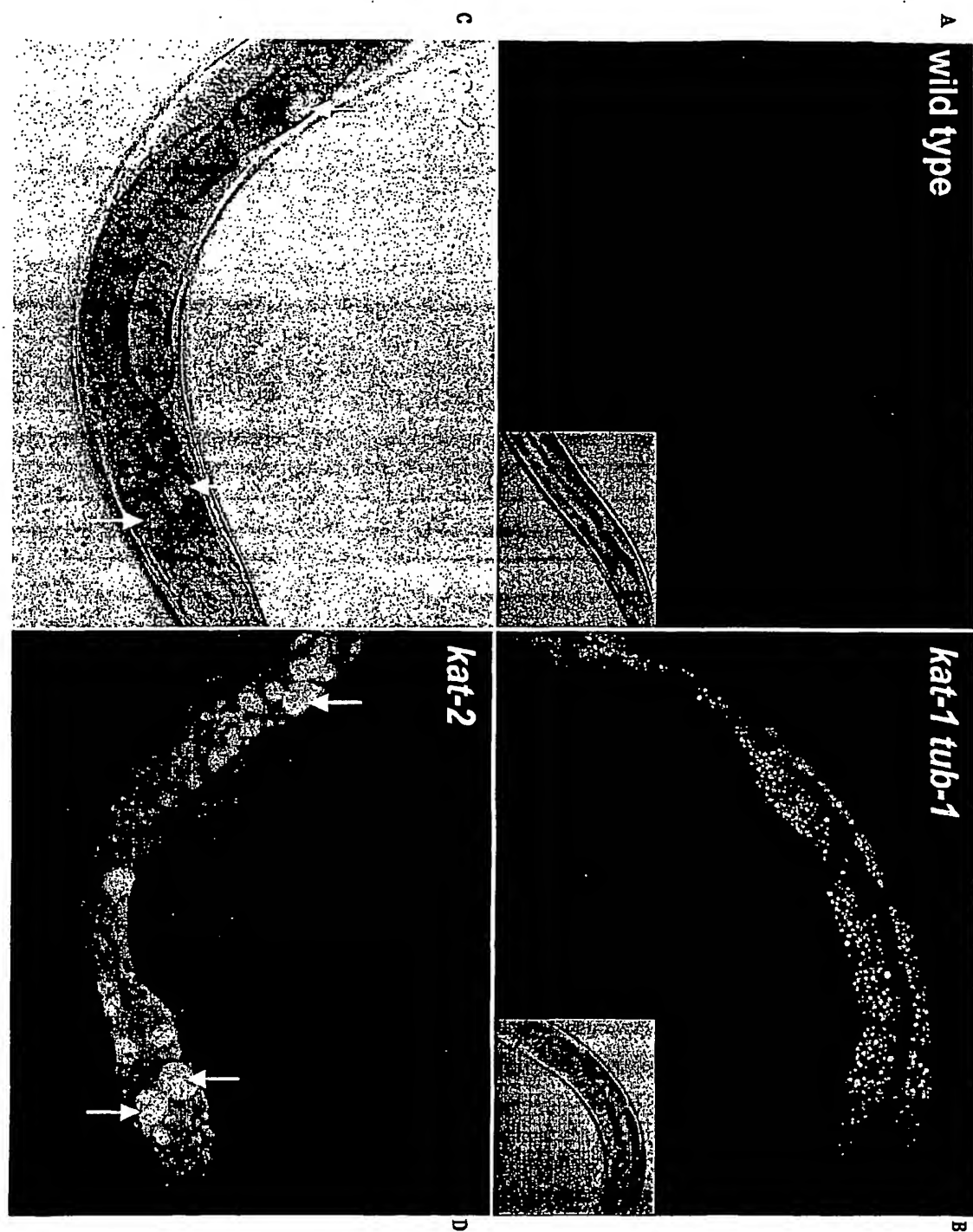


Figure 25A-25D

Nile red staining of 6 day old adult

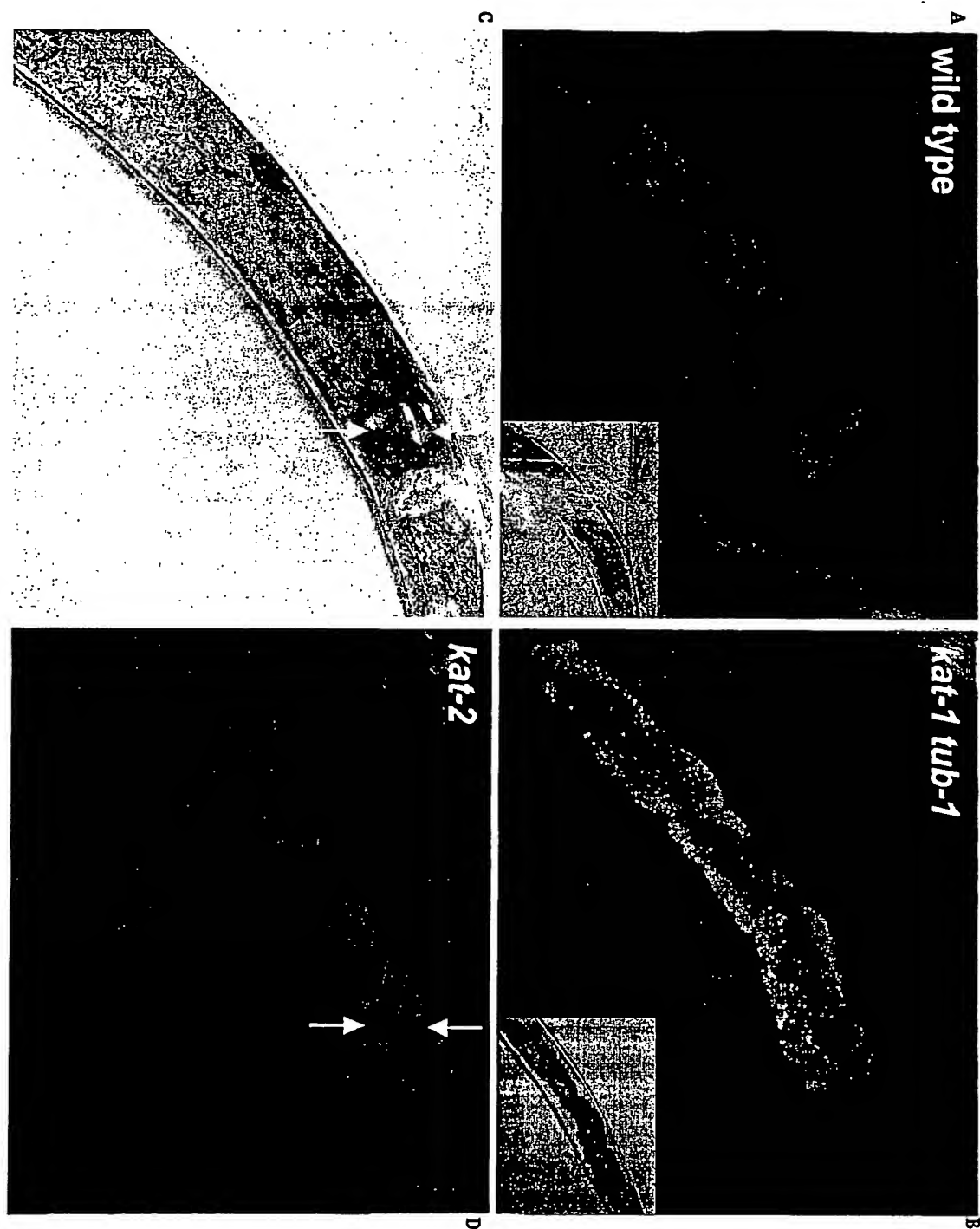


Figure 26A-26D

Peroxisomal GFP

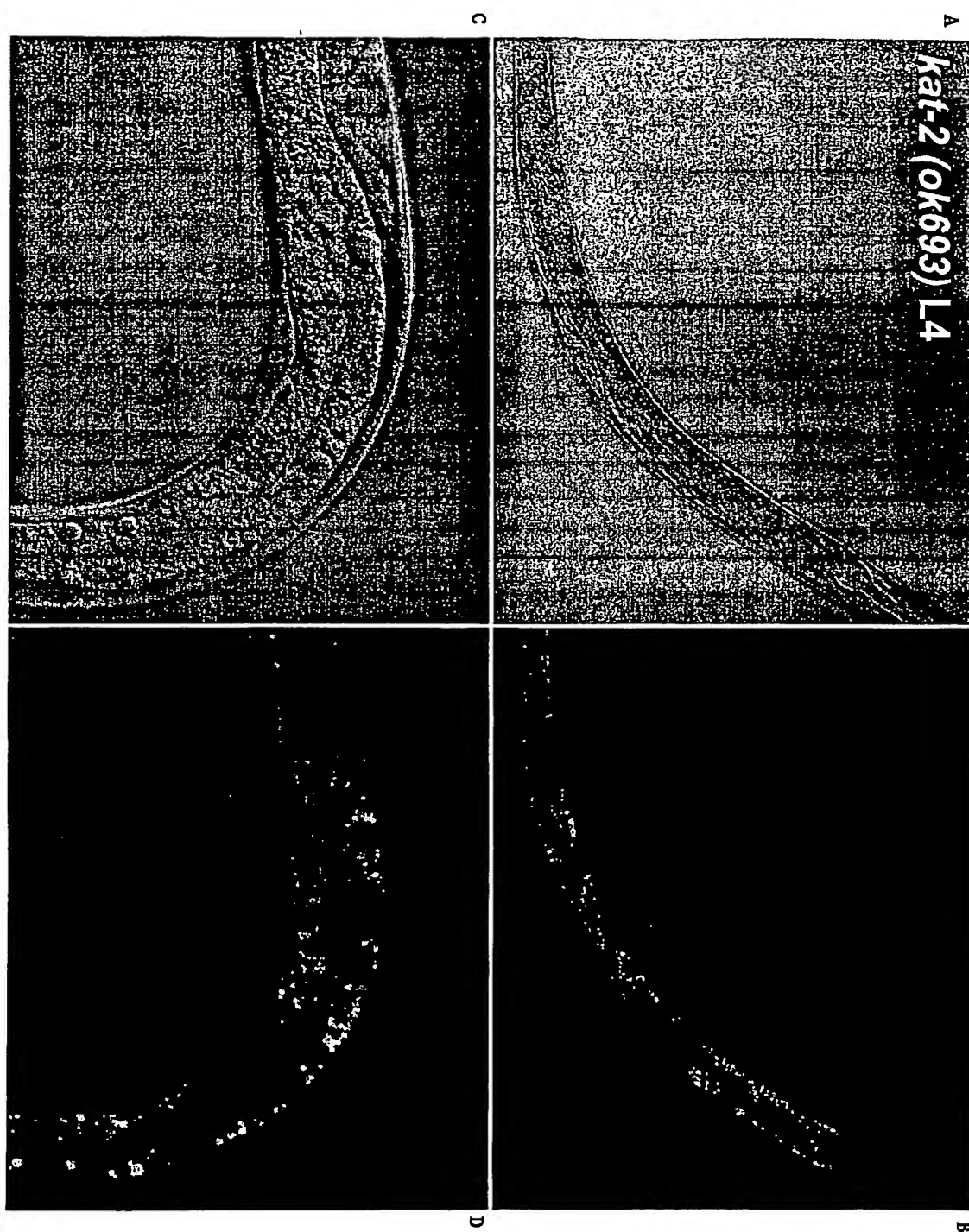


Figure 27

